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ABSTRACT

Rather than relying on traditional measures of student performance, new admissions procedures for four-year institutions attempt to describe what students know and can do. Current procedures do not reflect integrated curriculum and applied learning, and they penalize multidisciplinary project and work-based learning program participants. Four states have implemented competency-based admissions policies and procedures. California's Transitions project has designed secondary school instruments reporting student achievement and potential in the language of performance. The University of Wisconsin's Competency-Based Admissions System gives diversely prepared students an alternative method for admission consideration. Oregon's Proficiency-Based Admissions Standards System prepares more students to do college-level work successfully and enables them to make better choices concerning their academic program and subsequent careers. Washington's competency-based admissions plan creates a pathway to college for students taking nontraditional courses. Conclusions about the use of changing admissions for students in a career-oriented curriculum are as follows: (1) considerable time and resources are needed to develop new admissions assessment strategies and materials; (2) vocational-technical educators have seldom participated in these developmental efforts; and (3) the impact of these initiatives on educators is significant. (Contains 31 references.) (YLB)

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New College Admission Procedures:

Implications for Career-Related Learning in High School

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I think it is important for both faculty and students to feel as if what they are doing is important. Students especially need to know that they are being evaluated in many ways and what they do everywhere matters—not just in core academic courses, but everywhere. When their goal is being admitted into college, it's important for them to know that they need to be competent writers in their English classes, as well as in their agriscience courses.

– High School Agriscience Teacher

I think that competency-based admissions takes the pressure off of admissions officers' backs by putting it on the high schools to say that this apprenticeship does help students develop math skills and this is how. It is up to them to determine whether it is valuable or not—defining the competencies and skills the student has gained by participating. I think this is a very useful tool for me in admissions to answer the question, "How does this apprenticeship experience develop math skills?" It is very helpful to know that those who are really working with students are evaluating them.

– Admissions Officer
University of California, Berkeley

Rather than relying on traditional measures of student performance, new admissions procedures attempt to describe what students know and can do.

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These two professionals' comments reflect many educators' sentiments about the use of new admissions procedures in four-year colleges and universities. Rather than relying on traditional measures of student performance, such as grades and the completion of Carnegie units in specific courses, these procedures attempt to describe what students know and can do. In this brief, we describe recently completed and continuing research aimed at assessing whether students who participate in career-related courses and work-based learning in high school benefit from these new assessments. We begin by describing the rationale behind efforts to redesign undergraduate admissions, noting some of the deficiencies in traditional measures used for student selection into colleges and universities. We then highlight recent initiatives in states where changing admissions have been developed: California, Wisconsin, Oregon, and Washington. Finally, we end with preliminary conclusions about the use of changing admissions procedures for students who follow a career-oriented curriculum in high school. Additional findings and conclusions will appear in Fall 1999 in the final report of this project.

Educational Reform and College Admissions

The rising demand for education at the baccalaureate level is, in part, a response to the increasing economic payoff. Among 25-34 year olds, men with a bachelor's degree or higher earned an average of 24% more per year than high school graduates in 1970, but in 1996, the college graduates' advantage had grown to

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54%. For women, the additional earnings of college graduates compared to high school graduates rose from 68% in 1970 to 88% in 1996 (Witt et al., 1998). The large proportion of bachelor's degrees earned in occupational majors such as business, engineering, health, and education indicates that much of the demand for college is career-related. This proportion of occupationally focused bachelor's degrees expanded from 50.1% in 1971 to 59.1% in 1993 (Smith et al., 1996).

The same economic changes that have contributed to the rising payoff from a bachelor's degree have also given rise to a major reform movement in high schools and community colleges (Business Week, 1996; Olson, 1997). On the assumption that initial education and training now provide a smaller fraction of the knowledge and skills that people will need throughout their working lifetimes, schools and two-year colleges are offering students more opportunities to develop the capacity for continual learning in the context of work. High schools in particular are devising new courses of study that weave college-preparatory academic subject matter together with applications and experiences related to industries, occupations, and careers. Federal legislation enacted in 1990 and 1994, as well as laws in many states, encouraged the creation of new partnerships between schools and employers to provide work-based learning and integrated curricula that prepare students both for work and further education.

Ironically, while K-12 educators are trying to respond to the forces that have attracted more students to four-year colleges, it has become apparent that standard admission procedures in four-year institutions are an obstacle to educational reform. Current admission procedures that require specific numbers of Carnegie units in prescribed academic courses do not reflect the integrated curriculum and applied learning in which more students are now engaging. Worse yet, these conventional admission procedures may penalize students who spend time on multidisciplinary projects or in work-based learning programs through which they develop and use knowledge in applied contexts, rather than covering a traditional college-preparatory syllabus. For fear of jeopardizing students' chances of admission to selective colleges, some teachers and administrators are reluctant to pursue reforms even if they believe students would benefit from these reforms in other ways. A report by the National Governors' Association describes the problem:

> On the one hand, postsecondary institutions are avoiding revising admissions standards until they see what shape the reforms will take and how widespread they will be. On the other hand, many states and school districts are reluctant to pursue reform efforts more aggressively until they are sure that higher education admissions processes will accommodate their students. (Houghton, 1997, p. 9)

Admissions offices in higher education institutions are ill-equipped to evaluate applicants whose transcripts and application materials include evidence of contextual learning such as competency profiles, portfolios, or evaluations of interdisciplinary projects or workplace learning (Conley, 1996). Yet university admissions officers also recognize the need to accommodate these changes, as they may no longer be able to rely on a transcript which lists grades and Carnegie units in particular subjects. Some states are therefore allowing applicants to public universities to submit alternative evidence of what they know and can do. In addition to broadening access to public higher education, the hope is that these alternative measures also will be at least as effective as traditional measures in predicting students' success after they are admitted to college.

Limits of Traditional Measures Used for Admissions

Colleges have developed elaborate procedures to evaluate prospective students' potential, and their practices have become standardized at most four-year colleges in the U.S. With slight variations, students are required to provide a uniform set of application materials which includes a copy of the high school transcript (a student's cumulative grade point average [GPA] and class rank, as well as a list of completed courses), scores from standardized achievement tests (such as the Scholastic Aptitude Test [SAT] or the American College Testing [ACT] assessment), letters of recommendation, and an essay.

High school grades and standardized test scores are often given the strongest weight in deciding whom to admit because these two measures have been found to correlate positively with quantitative measures of success in college

(first-year grades in particular). In the jargon, high school grades and standardized test scores are said to have "predictive validity."

Over the past 30 years, empirical estimates of predictive validity have revealed that, taken together, high school GPA and standardized test scores explain somewhere between 25 and 45% of the variance in freshman year college grades (Morgan, 1990; Ramist & Weiss, 1990). This range might be thought of as a baseline to gauge the suitability of alternative measures used in the college admissions process. At the same time, traditional measures of high school achievement have been criticized on grounds other than their predictive validity.

For example, high school GPA has been criticized for its lack of standardization (Augustine, 1997; Finn, 1997; Ravitch, 1995). Because the curricula taught from school to school and state to state may differ dramatically, comparisons of high school grades may disregard the underlying differences in course difficulties both within and between schools. Furthermore, the strictness or leniency with which teachers assign grades may vary dramatically, not only between districts and schools, but also within schools and academic departments. This discrepancy is borne out by widespread evidence of grade inflation (The College Board, 1998; Mullen, 1995; Ziomek & Svec, 1995).

At the same time, standardized tests have been criticized both for their technical quality and their consequential utility. In terms of technical quality, some have argued that students who can pay for test preparation services can artificially boost their scores on standardized tests (Stockwell, Schaeffer, & Lowenstein, 1991), while others have argued that tests are poor indicators of what students have learned before entering college (Kessel & Linn, 1996). With respect to consequential utility, some have argued that a reliance on standardized testing discriminates against students in terms of gender, ethnicity, and income (Crouse & Trusheim, 1988).

The debate over the merits of standardized testing continues (Allalouf & Ben-Shakhar, 1998; Stricker, Rock, & Burton, 1996; Willingham, Lewis, Morgan, & Ramist, 1990). In contrast, the use of letter grades and Carnegie units has received relatively little scrutiny. Few explicit claims are made that grades and course units are valid representations of student learning; there is only belief that they contain a degree of predictive validity in the context of college admissions. Yet, by themselves, GPAs from course units predict only a small fraction of the variance in college grades. If grades and course titles are not ideal guides for college admissions, it might reasonably be asked whether there is anything better.

Furthermore, students who have had a nontraditional curricular experience in high school may be at a disadvantage when traditional measures are used as the basis for college admissions. For example, some high schools have moved towards integrating subject areas to teach concepts in a holistic way. A course called "Integrated Science/Math" may be listed on a student's transcript. Admissions officers wonder what this course is about, does it meet the level of science and math required for college preparation? How does "Applied Calculus" meet the standards and level of *regular* calculus? How do admissions officers evaluate the two years of a youth apprenticeship that a student completed in a biotechnology company? Has that student learned the science concepts necessary to be prepared for college? Such questions are cause for concern to students and their parents. Guidance counselors and high school faculty wonder whether they are doing students a disservice by encouraging them to explore alternative curricula, while university admissions counselors are unsure about what students know and can do upon completing these unconventional high school courses (McCormick, Alt, & Geis, 1998). These issues have led some institutions and states to explore alternative procedures such as competency-based or proficiency-based assessments for use in college admissions. (The terms *competency-based* and *proficiency-based* are used interchangeably unless otherwise noted.)

Students who have had a nontraditional curricular experience in high school may be at a disadvantage when traditional measures are used as the basis for college admissions.

Alternative Procedures in College Admissions

Four states are currently in the forefront of both discussing and implementing competency-based admissions policies and procedures:

- California
- Wisconsin
- Oregon
- Washington

The Transitions Project's mission has been to catalyze and accelerate secondary school reform by designing instruments reporting student achievement and potential in the language of performance, rather than in the language of credits and grades in certain prescribed courses.

Alternative Procedures in College Admissions

Institutions and states developing alternative admissions procedures may continue considering a few traditional factors for admission, but their primary emphasis is

> building upon academic and skill standards at the K-12 level, designing proficiency-based admission standards that incorporate explicit proficiencies or competencies across a range of disciplines, and communicating clearly what knowledge and skills students should master prior to attending college. The new admissions processes look beyond course requirements, grade point averages, and standardized test scores to specify the types and levels of knowledge and skills that students must demonstrate prior to entering college. (Education Commission of the States, 1996, p. 2)

In a recent survey by the State Higher Education Executive Officers (SHEEO), approximately 14 states report that they have begun discussions or are considering using competency-based admissions (Russell, 1998). SHEEO researchers suggested viewing the use of competency-based admissions criteria along a continuum, rather than as the polar opposite of using traditional admissions approaches. According to their report, state actions range from creating exploratory task forces (New York, Iowa) to piloting projects in which competency-based admissions procedures can be used in lieu of traditional methods (California, Wisconsin) to passing state legislative mandates for implementation in the coming years (Oregon, Washington).

Four states are currently in the forefront of both discussing and implementing competency-based admissions policies and procedures. California, Wisconsin, Oregon, and Washington. Each of the four states has taken a different approach to designing proficiency-based assessment systems or policy options. In California and Wisconsin, competency-based admissions and transcript initiatives emerged from a series of pilot studies and special projects. They were not part of a redesign of the whole K-16 system; instead, they focused specifically on how secondary school reforms (e.g., integrated academic and vocational courses, international studies, or teaching "habits of mind") might be translated into criteria for admission to the four-year universities involved. In Oregon and Washington, in contrast, the new admissions policies and practices are directly linked to K-16 reforms which include new assessment standards for graduation from high school.

In 1998, a research team from NCRVE visited each of these four states. The information describing these four initiatives was drawn from individual and group interviews; observation of key meetings; analysis of documents, reports, and research; and small-scale analyses of particular aspects focusing directly on career-related learning. While all four of these states are in the early stages of development, the perspectives gleaned from their initial efforts identify key issues and implications for policy development.

California— The Transitions Project

In California, a limited pilot study, called the Transitions Project, has been an established element in the process of beginning to develop a competency-based admissions procedure. The Transitions Project was launched in 1993 as a collaborative initiative by the California Center for School Restructuring (CCSR) to address the perceived roadblock to high school reform stemming from an inflexible college admissions process. This collaboration included educators affiliated with the Bay Area Coalition of Essential Schools; admissions officials from the University of California and California State University systems; and representatives from The College Board, Educational Testing Service, and the California Department of Education. The nonprofit Pacific Education Group served as organizational facilitator.

The Transitions Project's mission has been to catalyze and accelerate secondary school reform by designing instruments reporting student achievement and potential in the language of performance, rather than in the language of credits and grades in certain prescribed courses (known in California as the "A to F requirements"). These new transcripts not only reflect reform efforts being implemented in schools, but also strive to provide essential indicators of student readiness to engage in rigorous university-level work, technical training, employment opportunities, and other post-secondary options.

To test this new system, alternative competency-based transcripts were developed in five different high schools associated with the Coalition of Essential Schools. Three of these schools have received formal approval to use these alternative transcripts for students applying to University of California (UC) and California State University (CSU) campuses. Examples of models for these alternative transcripts are described below.

High School A

Alternative transcripts in this school have four competency domains describing the range of concepts and skills in which students are expected to become proficient: (1) subject matter knowledge, (2) communication skills, (3) habits of work, and (4) habits of mind. In each domain, students can be rated at one of four performance levels: (1) exceeds standard, (2) proficient with regard to standard, (3) advancing toward proficiency, or (4) needs to develop. Since the knowledge domain is based on core concepts and skills covered in each course, it reflects grade-level standards of the content students should know from various disciplines such as English, history/social studies, mathematics, science, modern language, and fine arts. The other three domains reflect process skills—the standards for these are set at graduation level (i.e., students are judged by the level they have achieved at the time of graduation). In designing this framework, the high school clarifies that few students are expected to meet the standards of communication skills, habits of work, and habits of mind as freshmen; instead, students are expected to progress ("advance") toward proficiency during their high school careers.

High School B

This school has organized the final two years of its curriculum around career-related themes. Its alternative transcript has six competency domains that describe the range of concepts and skills in which students are expected to reach "standard" levels of performance: (1) habits of inquiry, (2) the experience of technology, (3) collection and organization of information, (4) communication of ideas, (5) effective collaboration with others, and (6) lifelong learning. In each domain, students can be rated at the following levels: distinguished, mastery, achieves standard, near standard, below standard, and no evidence. Unlike High School A, all of the competency domains defined by High School B are assessed on a grade-level demonstration of mastery rather than a graduation level of mastery. Hence, the full range of ratings is expected from students in each alternatively-scored course, regardless of grade level. Domain-specific rubrics are developed to define explicit, expected standards of student performance.

Transitions Project schools began developing alternative forms of assessment in 1993, culminating in the Fall admission period of 1996, when an initial cohort of 92 students applied to UC and CSU campuses. The number of students admitted in this cohort is not currently available. A second and third cohort of 115 students applied in 1997, and 62 were admitted and chose to register. The data is not yet available as to how many students applied and/or were accepted for the 1998 admissions cohort. The NCRVE study is documenting the Transitions assessment process at these high schools and the use of Transitions transcripts in the admissions process. NCRVE is also helping to reframe the format of the transcripts and is laying the groundwork for analyzing the predictive validity of Transitions data.

Wisconsin—Competency-Based Admissions

The University of Wisconsin (UW) System's Competency-Based Admissions (CBA) policy was designed to give admissions officers an alternative method to assess "diversely prepared" students' readiness for admissions at any of the UW System's 13 four-year campuses. In particular, it was developed for use with students from schools with a nontraditional curricular structure or for those whose high school experiences are not easily translated into the course titles and Carnegie units required for admissions. The UW System Board of Regents (BOR) adopted the CBA policy in December of 1997 following a three-year pilot study involving 11 high schools. This policy states that high school officials may elect to prepare a UW System CBA profile in addition to, or in lieu of, a traditional high school transcript.

Before the BOR was willing to adopt this policy, it authorized the CBA Pilot Project to implement and study this procedure with a representative sample of Wisconsin schools. During this project, secondary and postsecondary faculty jointly developed descriptions of competencies in five subject areas: (1) English, (2) mathematics, (3) science, (4) social studies, and (5) foreign languages (University of Wisconsin System

The University of Wisconsin System's Competency-Based Admissions policy was designed to give "diversely prepared" students an alternative method for admission consideration.

Office of Academic Affairs, 1997). In each of the schools, high school faculty were trained in preparing competency ratings for a group of students planning to attend a four-year college upon graduation. All sites used the same 5-point rating scale and a Standardized Reporting Profile (SRP). The SRP lists the content areas mentioned previously—English, mathematics, science, social studies, and foreign languages—with specific competency areas listed for each one. For example, the English/language arts competency areas include Writing Process, Writing Product, Reading/Literature, and Oral Communications. For each of those areas, faculty members use a scale ranging from 1 to 5 to fill out the profile. A "3" means that the student has reached "Satisfactory Performance"—the minimum level for college preparedness.

During the pilot study, the admissions offices of each UW institution followed a double-blind admission procedure when considering candidates from each of the high schools. Students provided two sets of information in separate applications: a traditional application (including the student's transcript, class rank, ACT test scores, and application for admission) and the CBA (including SRP, ACT test scores, and application for admission). An independent admission decision was made using each of these files. Students deemed admissible under either or both of the processes were granted admission (University of Wisconsin System Office of Academic Affairs, 1997).

Three hundred and fifty-five admissions decisions were made in 1996 and 238 in 1997. Generally, data from the pilot project suggests a high level of agreement between decisions reached with traditional application information and with information from the CBA file. For the 1996-1997 academic year, 67% of the students were admitted by both processes, 12% were denied by both processes, 13% were admitted by traditional measures but denied through CBA, and 8% were admitted by CBA and denied through the traditional process. In 1997-1998, these numbers were 80%, 11%, 7%, and 2% respectively.

Data from the first and second year cohorts have been analyzed, and a number of generalizations have been made about the use of the CBA. Significantly, the competency scores provided by the high school teachers were as effective as traditional transcript data in predicting student outcomes in the first year of college (University of Wisconsin System Office of Academic Affairs, 1998, pp. 2-3).

In 1998, two small scale studies were undertaken by NCRVE researchers to understand how CBA is being implemented, especially with students who have career-intensive experiences in high school. The first study involved interviewing 30 of the "front-line" implementers of the CBA policy, including high school faculty, high school guidance counselors, and university admission counselors. The second study involved using the CBA for admissions with 38 career-intensive students in one high school.

Implementation Perspectives

In the first study, respondents were asked the following questions. A brief synthesis of the responses is given after each question.

For which students is the use of the CBA most appropriate?

High school faculty, guidance counselors, and admissions counselors mentioned using the CBA with students who do poorly on standardized tests, who are "the silent majority" (neither poor performing nor outstanding students), who have improved over time but who still have a low GPA, who "learn by doing," or who have taken a different "track" in high school (not college-preparatory). The CBA may be the most appropriate means for describing these students' competencies, regardless of their educational background or experience.

***How is the SRP scored?* (asked of faculty members)**

In general, faculty told us that they reflected on the students' completed work and gave a score based on the student's proficiency level for the skills within each subject area. This was especially easy for the faculty members who taught in one of the five core academic content areas listed on the SRP. Faculty who teach in other areas (e.g., agriscience, business, fine arts) found it challenging to fit into this schema. Although these faculty members are often asked to provide input on a SRP, they often defer to the core academic teacher's score, even though the students' performance might reflect different levels of competencies in their courses.

***What do you look for on the SRP profile to admit a student?* (asked of admissions counselors)**

The admissions counselors rely on specific criteria based on their individual institution and

the level of selectivity they are required to meet. Above all, they focus on admitting students they feel are prepared for college. This issue is particularly challenging in light of the SRP profile format. Should a student who has scores of "3" (the minimum rating for performing college-level work) in all competency domains be admitted automatically? How do the different scholarly expectations at each campus get considered? These and other questions have yet to be fully addressed.

What are your perceptions about the CBA and career-intensive students?

In general, the respondents had strong opinions about the value of vocational/career-oriented experiences for students. Responses to this question depended on the context in which the interviewees placed career-intensive students. Overall, most admissions counselors had a negative perception about students who have spent a significant amount of time in vocational courses or experiences. Such experiences were viewed as "competing" with academics, or taking students away from being "college-prepared." Admissions counselors were highly ambivalent about admitting students who might not succeed because they are not ready for the rigors of academic, college-level work. Teachers, especially those who teach in vocational subjects, challenge the belief that their courses lack rigor. They contend that although these classes are different, they are not necessarily lacking in academic content.

How are the experiences of career-intensive students represented on the SRP?

CBA has potential for students who have been "diversely" prepared only if the content of vocational classes/programs is clearly defined and supports college-preparedness. The only way a student's abilities can be reflected on the SRP is to have faculty from different core and applied learning areas work together to provide input on students' SRPs. In other words, high school faculty mentioned that it is difficult to represent their students in the CBA if, as teachers, they are not directly responsible for courses in the five areas listed on the SRP. These instructors need to negotiate the score with teachers from the academic subjects. Faculty need to work together to make sure that student competencies are reflected on the SRP, regardless of the class or experience from which they developed. This collaboration is a complex challenge for faculty and admissions counselors alike.

Bucky Badger High School

To explore the potential effects of career-intensive courses and programs on the SRP scores, conversations were initiated with the staff and administrators from one of the high schools participating in the CBA pilot study which we will call Bucky Badger High School (BBHS). The guidance counselors were asked if they would assist in compiling information, including SRP ratings, for a set of career-intensive students. To the extent possible, the goal of this small-scale study was to replicate the SRP process with students who had taken a career-intensive program of studies during their first three years of high school. At BBHS, career-intensive students were defined as those who had completed a sequence of courses in one or more of the following areas: agriculture, technology education, business education, community service, or integrated math/science. In the second phase of the study, admissions staff at three campuses of the UW System evaluated the SRPs and related information to make a preliminary determination of each student's admission potential.

Overall, the exercise suggests that carefully planned career-intensive courses, especially those linking academics and science and math-focused technical subjects, can be an avenue for gaining admission to four-year colleges. At BBHS, students who had completed courses in "Integrated Math" and "Integrated Science" were given higher ratings in these core academic areas, especially when they had also taken vocational-technical courses such as agriculture, biotechnology, or technology education. While this pattern of course-taking appears to produce positive outcomes, only a small percentage of students at BBHS had actually taken challenging patterns of high school courses such as these.

Oregon: Proficiency-Based Admissions Standards System

As mentioned previously, Oregon is different from California and Wisconsin because of its recent efforts to create a seamless and aligned K-16 system of education. Following from the legislatively mandated benchmarks and standards in K-12 schools, higher education institutions are adopting a set of proficiency-based admission standards. In 1991 and 1995, two performance-based certificates, the Certificate of Initial Mastery (CIM) and

PASS is designed to accomplish three important goals: (1) to prepare more students to do college-level work successfully, (2) to enable students to make better choices concerning their academic program and subsequent careers, and (3) to decrease the time it takes them to graduate from college.

the Certificate of Advanced Mastery (CAM), were authorized as the principal vehicles for improving student performance and redefining the K-12 curriculum. These certificates are to be awarded based on students' performance of skills, not grades and credits. Both the CIM and CAM focus on student achievement of high academic standards. Additionally, the CAM focuses on application in a career context and transition to post-high school settings.

While much discussion took place in the early 1990s regarding standards and the two certificates of mastery, nothing specifically addressed how the standards would influence or affect the students' admission to institutions of higher education. To this end, the State Board of Higher Education (SBHE) and the State Board of Education (SBE), which governs K-12 schools and community colleges, began discussions about creating a "seamless" transition between systems for students. These discussions led to the creation of the Proficiency-Based Admission Standards System (PASS).

Aligning the CIM, CAM, and PASS

By the year 2002, schools throughout the state will be required to offer both the CIM and the CAM. As described in *Oregon Standards*, a newspaper mailed to every Oregon school and school district which contains the academic content and performance standards expected of students plus other information about state tests, work samples, and the CIM and CAM, the CIM is "an award given to students who have met 10th-grade standards on state tests and classroom assignments in English, mathematics, science, social sciences (history, civics, geography, and economics), the arts, and a second language" (Oregon Department of Education, 1998, p. 2). The CAM is "an award given to students who have met 12th grade standards on state tests and classroom assignments in English, mathematics, science, social sciences (history civics, geography, and economics), the arts, and a second language" (Oregon Department of Education, 1998, p. 2).

The CAM is of particular interest, since it explicitly acknowledges the value of work, community-based learning, and career goals. Students will need to meet career-related learning standards in personal management, problem solving, teamwork, communication, organizations and systems, career development, and employment foundations. Students are also required to participate and learn within an endorsement area of study. Six broad endorsement areas have been identified: (1) Arts and Communications, (2) Business and Management, (3) Health Services, (4) Human Resources, (5) Industrial and Engineering Systems, and (6) Natural Resource Systems. Finally, students are required to participate in career-related learning experiences outside the classroom (Office of Professional Technical Education, 1998, p. 9). These experiences are integrated and connected to the classroom to help students achieve both the academic and the career-related learning standards found in the CAM.

PASS is a clearly specified description of knowledge and skills required for university admission; it is organized into increasing levels of detail in each area of proficiency. Six content areas encompass disciplinary knowledge in (1) mathematics, (2) science, (3) social sciences, (4) foreign languages, (5) humanities and literature, and (6) fine and performing arts. In addition, as students learn the material in the six content areas, they must also apply intellectual and cognitive skills from the following nine processes: (1) reading, (2) writing, (3) communication competence (speaking, listening), (4) problem solving, (5) analytical thinking, (6) integrative thinking, (7) technology as a learning tool, (8) teamwork, and (9) quality work (Conley, 1997, p. 2). Essentially, PASS is designed to accomplish three important goals: (1) to prepare more students to do college-level work successfully, (2) to enable students to make better choices concerning their academic program and subsequent careers, and (3) to decrease the time it takes them to graduate from college.

The leaders of the PASS initiative see its success directly linked to the full implementation of the CIM and CAM assessments and the alignment of all three. Conversely, the prospects for successfully implementing the K-12 education reform movement are substantially enhanced by universities' willingness to adopt new and compatible assessment processes for making admissions and placement decisions. As a transitional strategy, colleges will continue to accept transcripts and conventional college entrance exams until PASS is widely accepted.

Washington–
Competency-Based Admissions

Washington is developing a competency-based admissions system very similar to Oregon's PASS project. In 1993, the Washington legislature passed the Basic Education Act. This bill established the Commission on Student Learning, which was charged with identifying content standards for what all public school students should know and be able to do. The Commission was directed to develop a performance-based education system along with a functional student assessment and accountability system. As part of the new assessment system, students would be required to demonstrate mastery of set content by the 10th grade, leading to a Certificate of Mastery (CoM)—a new graduation requirement. In addition, the Commission was expected to recommend college entrance requirements which would be consistent with newly developed high school content standards under consideration by the Higher Education Coordinating Board (HECB). The HECB, in turn, would act upon these recommendations by translating traditional admissions standards into competency-based admissions standards. Pilot testing of the new admissions standards will take place in three high schools by the year 2000. As of 2006, all graduating public high school seniors applying for admission at a Washington public university will be required to fulfill competency-based standards.

Statewide Conferences

The HECB hosted a statewide conference in the spring of 1998 at which teachers from three pilot high schools convened to discuss competency standards approved by the HECB in math and English. Building on the success and feedback from their first conference, a second conference was held in the fall of 1998 to refine the competencies previously defined for math and English and to begin developing assessment mechanisms. Conference participants included math and English teachers from three high schools and five public universities. These faculties were to have teachers focus on two topics: (1) What should three years of college-preparatory math and English look like in terms of expected competency? and (2) How should these competencies be assessed?

Math and English teachers split into separate groups in order to discuss each subject's set of competency standards, which had been tentatively approved by the HECB. To help refine the standards further, college teachers provided examples of student work in math and English that they considered representative of entry-level work. In the math group, these "anchors" led to animated discussions between high school and college teachers about expectations for student work at each level. High school teachers pointed out a potential for misalignment between college admissions standards and high school level standards. The high school standards emphasize "process skills"—general strategies of problem solving and reasoning—while the college standards may be emphasizing specific content that may or may not have been covered in the high school curricula. Such concerns were even more dramatic among the groups of high school and college English teachers. Discussion of anchor papers exposed overarching concerns about how to evaluate the numerous factors involved in good writing. As these concerns were discussed, some of the English teachers lamented that the developing admissions standards seemed absolute and inflexible. Ultimately, Washington teachers refining the math and English competency standards were able to reach consensus and create an apparent alignment between the expectations for high school graduation and college admission, though this consensus was more difficult for the English group in which standards were harder to quantify.

High school math and English teachers have been asked to use the newly refined competency standards to create six student assignments. These assignments are to be scored and assessed by the teachers according to the developed standards for college admission. Based on the assignments, they are to sort their students into three groups of achievement: (1) below standard, (2) standard, and (3) exceeds standard. To reinforce the connection between assigned tasks and their assessment, it was suggested that teachers allow their students to design and even help score specific assessment rubrics. Teachers are scheduled to meet again in June 1999, to compare and calibrate their assessments of student performance.

Washington's progression toward a competency-based system of admissions bodes well for strengthening nontraditional, career-based curriculum throughout the state. According to the policy associate at HECB who leads the competency-based admissions project, the intent of Washington's competency-based reform is to ensure that college readiness will no longer be

An explicit hope of the reform in Washington is that it will create a pathway to college for students taking nontraditional courses.

The key question is whether and how students gain greater access to, and achieve greater success in, postsecondary education when they are prepared in programs that combine an integrated academic-vocational curriculum with work-based learning.

measured solely by letter grades and the time spent in a particular type of class. As long as students can demonstrate mastery of a defined set of skills, the exact courses they took to develop those skills will be inconsequential. An explicit hope of this reform is that it will create a pathway to college for students taking nontraditional courses, keeping them from being prematurely tracked into a career on the basis of their high school curriculum.

Implications for Career-Related Learning in High School

The start of the 21st century will signal the beginning of wide-scale consideration of competency- or proficiency-based assessment systems in education. While new initiatives have been debated in the policy arena for the past decade, these types of assessments continue to gather support for many reasons. First, proficiency-based assessments are more in alignment with constructivist approaches to learning which are growing in popularity at the high school level. Second, the general public, employers, and college admissions officers continue to express distress at the lack of knowledge and skills that high school graduates demonstrate based on national and international measures of learning and achievement. The global economy has shifted the dialogue from concern about students' performance on norm-referenced, conventional paper-and-pencil assessments to criterion-referenced measures of a set of "new basics" that include students' use of technologies and soft skills such as problem solving, teamwork, and effective interpersonal communications. Finally, the widespread acceptance of student learning outcomes as the core measures of educational quality suggests that proficiency-oriented assessment will be central to policy and program improvement efforts.

As states move toward competency- or proficiency-based assessments, alignment issues are fundamentally important yet highly problematic. Educational standards or competencies must be both vertically and horizontally aligned. The central concern of the curriculum articulation dimension (vertical integration) is the degree to which standards and performance benchmarks for graduation from high school are similar to admission requirements for college. There is widespread agreement that high schools need to prepare all students for some form of postsecondary education, yet the extent to which high school diplomas and college admissions portfolios should portray similar or dissimilar competencies and/or performance benchmarks remains an open question. In Oregon and Washington, where new assessments are required for high school graduation, considerable time and effort has been focused on that alignment. In Wisconsin, where the CBA pilot project has produced positive results, an interest in aligning these standards with the recently developed core academic learning standards is now emerging.

The horizontal or crosscurricular alignment issues challenge conventional wisdom about where and how students can obtain knowledge and competence. New college admissions standards in all four states combine, and to varying degrees, differentiate between disciplinary knowledge (i.e., core academic learning in mathematics, science, English, social studies, and languages) and procedural knowledge and proficiency (e.g., the Oregon PASS process areas which include reading, writing, communication competence, problem solving, analytical thinking, integrative thinking, technology as a learning tool, teamwork, and quality work). These core knowledge and process skills can be acquired in various combinations of courses: academic, vocational-technical, fine arts, foreign language, or integrated courses, or through new forms of schooling (e.g., career academies, work-based and community service learning). As assessment rubrics evolve, and as proficiency and learning outcomes are identified, practitioners can develop broader empirical analyses of how students succeed in both college and the world of work. Since many configurations of secondary school reform may not include career-related learning standards or pedagogy, it is important to identify and study those that do. The key question is whether and how students can gain greater access to, and achieve greater success in postsecondary education when they are prepared in programs that combine an integrated academic-vocational curriculum with work-based learning.

Experience and research in these four states suggest several preliminary lessons for policymakers, as well as for state, K-12, and university leaders:

- Considerable time and resources are needed to develop new admissions assessment strategies, proficiency and competency lists, and scoring rubrics. Most often, these efforts have been undertaken jointly by work groups composed of high school and university

faculty from specific academic areas. The development of these initiatives has taken considerably longer than originally estimated; however, the collaborative development of such assessment plans, new transcripts or profiles, and scoring rubrics will generate a better understanding of new curriculum standards, improved teaching methods, and examples of high-quality student work.

- In the four states included in this review, vocational-technical educators have seldom participated in these developmental efforts. State higher education boards or universities moving toward developing new college admissions standards might consider broader models of collaboration. Such efforts would help to examine the potential effects of career-related learning in high school in the admissions assessments, as well as in examining how such learning affects success in college and beyond.

- The use of multilevel committees and work groups builds important political, professional, and institutional support for K-12 standards-based education reform and for new connections between schools and postsecondary institutions.

- Sooner or later, states recognize the need to align new university admissions procedures with K-12 learning standards. While caution must be exercised to ensure that university-based expectations do not unduly dominate the high school curriculum, the core elements of learning must be congruent to some degree with those identified for success in postsecondary education. Through the level of proficiency and performance they demand, particular learning standards should signal clearly what level of work is required for college admission.

- The impact of these new initiatives on educators should not be underestimated. These professionals are being asked to reconceptualize the way students learn and how they should be assessed. Their involvement in the development, planning, and implementation of new initiatives is key to the initiative's success and will require considerable time, resources, and professional development.

Many national groups are researching and discussing the implications of alternative admissions procedures on the K-16 educational system. Both SHEEO (e.g., see Conley, 1998) and the American Association of Universities Task Force on K-16 Education (e.g., see Association of American Universities, 1998) will continue to lead the discussions and debate about this important topic. NCRVE's research will inform the dialogue by documenting the extent to which career-related learning experiences in high school contribute to successful outcomes on competency-based assessments for university admission. In this context, developing assessment rubrics for complex school-based projects and new curricula will help to gauge the value of these learning experiences. Assessing student learning in new venues and formats will help high school and college instructors to integrate more project-based or work-based learning experiences in their courses. The expanded use of alternative assessments will eventually support new ways to document students' knowledge, dispositions, and performance capabilities in both high school and beyond.

The expanded use of alternative assessments will eventually support new ways to document students' knowledge, dispositions, and performance capabilities in both high school and beyond.

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